Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

ORIGINAL

In the Matter of	)	
	)	
Revision Of The Commission's Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems	)	CC Docket No. 94-102 RM-8143
	)	
Southern Illinois RSA Partnership	)	File No. _____
	)	
Licensee of Cellular Radiotelephone Service Stations KNKN506, Market No. 401(B), Illinois 8 - Washington RSA and KNKN820, Market No. 402(B), Illinois 9 - Clay RSA.	)	

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

To: The Commission

PETITION FOR WAIVER OF SECTION 20.18(C) OF THE RULES

Southern Illinois RSA Partnership ("the Petitioner"), by its attorney and pursuant to the Commission's Order, Mimeo DA 98-2323, released November 13, 1998 ("Order") in the referenced rulemaking proceeding, hereby requests the Commission to waive the requirements of Section 20.18(c) of the Rules, effective January 1, 1999. In support hereof, the following is shown:

1. The Petitioner is the licensee of Cellular Radiotelephone Service Stations KNKN506 and KNKN820, the Frequency Block B cellular systems serving the Illinois 8 - Washington and Illinois 9 - Clay RSAs, respectively. Ten of the 39 cellular base stations in the Petitioner's cellular systems operate with both standard analog channels and Code Division Multiple Access ("CDMA") digital channels. The remaining 29 cellular base stations are analog only.

2. Insofar as relevant here, Section 20.18(c) of the Rules

relates to the transmission of 911 calls made from Text Telephone ("TTY") devices using digital wireless systems. In its Order, the Commission acknowledged the October 30, 1998 filing by the Cellular Telephone Industry Association ("CTIA") of the Workplan of the Wireless TTY Forum. The Commission characterized the October 30 Workplan as identifying "possible solutions for TTY access over digital wireless systems,"[1] thus acknowledging that the technology does not presently exist to transmit 911 calls from TTY devices over digital wireless systems. Accordingly, in the Order, the Commission: a) extended the suspension of enforcement of Section 20.18(c) of the Rules through December 31, 1998; and b) established procedures pursuant to which wireless carriers subject to the requirements of Section 20.18(c) of the Rules may petition the Commission for waivers of such requirements which, if granted, will take effect on January 1, 1999, after the suspension of enforcement expires.

3. At this juncture, the Petitioner wishes to emphasize that a waiver of Section 20.18(c) of the Rules does not appear to be required in this case. In the Order, the Commission established "a waiver mechanism that requires carriers to provide specific information (including well-documented timetables and milestones) regarding their plans to comply with the requirements of Section 20.18(c)"[2] of the Rules. The Commission took "this action because persons with disabilities who rely on TTY devices must be able to

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[1] Order, Para. 2.

[2] Order, Para. 4.

use 911 in emergencies, when lives may depend on effective communication with public safety personnel" Order, Para. 4 (emphasis in original). In this case, all of the Commission's objectives are met by the Petitioner's existing cellular facilities. As noted above, the Petitioner's cellular systems are equipped with both analog and digital channels. The TTY devices operate on the Petitioner's existing analog channels, and, as a result, speech or hearing impaired individuals can use the Petitioner's existing cellular systems to place 911 calls. Thus, the Petitioner's existing systems clearly meet the requirements of Section 20.18(c) of the Rules.

4. To the extent that a waiver of Section 20.18(c) of the Rules is needed, it is clearly warranted here. At present, the equipment simply does not exist to permit the operation of TTY devices on digital channels, and the Commission has not yet determined the best means of accomplishing compliance with the requirements of Section 20.18(c) of the Rules, all of which has been expressly acknowledged by the Commission. In its Order, the Commission characterized CTIA's October 30 Workplan as suggesting that "carriers operating digital wireless systems will not be able to bring themselves into compliance with the requirements of Section 20.18(c) in the near future," but acknowledged "that the Forum has striven to develop voice-based and data-based solutions to the problems associated with successfully transmitting TTY calls over such systems" Order, Para. 5. The Commission encouraged the Forum to continue its efforts "since it has the opportunity to

serve as a vehicle to spur further discussion and analysis of possible solutions;" and stated that the Forum "should continue the task of providing test results and demonstrations on several potential methods for dealing with incompatibility between TTY devices and the different digital wireless technologies" Order, Para. 6 (emphasis added). Not only has the Commission acknowledged the nonexistence of the necessary technology, but it has also admitted that the best means for complying with Section 20.18(c) have yet to be decided. In this regard, the Commission observed that the "[c]ompletion of this testing and the provision of an evaluation of the test results by the Forum to the Commission will play a role in the Commission's determination of the best means to accomplish compliance with the requirements of Section 20.18(c)"[3] of the Rules. Clearly, a waiver of Section 20.18(c) of the Rules is warranted where, as here, the equipment does not exist to permit the operation of TTY devices on digital channels, and where the Commission has not yet determined the best means of accomplishing compliance with the requirements of Section 20.18(c) of the Rules. Given the circumstances, it is impossible to comply with the requirements of Section 20.18(c) of the Rules on digital wireless systems.

5. In Paragraph No. 11 of the Order, the Commission specified three categories of information that carriers should provide to support their waiver requests. These requirements are apparently intended "to require the carriers to demonstrate their commitment

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[3] Order, Para. 6.

to, and plans for, complying with Section 20.18(c)"[4] of the Rules. Consistent with these requirements, the following information is submitted:

6. Category 1 - **What steps the carrier is taking or intends to take to provide users of TTY devices with the capability to operate such devices in conjunction with digital wireless phones.**

7. **Response To Category 1**: The Petitioner's cellular systems use equipment manufactured by Motorola, Inc. ("Motorola"). The Petitioner plans to install the equipment necessary to provide the users of TTY devices with the capability to operate such devices on the systems' digital channels as soon as practicable after the equipment becomes available from Motorola and from the manufacturers of TTY handsets.

8. Category 2 - **When the carrier intends to make this capability available to TTY users. This information should include well-documented timetables and milestones from the carrier regarding the implementation of this capability.**

9. **Response To Category 2**: The development of timetables and milestones for the implementation of this capability is a function of, and contingent upon, the availability of equipment from Motorola and from the manufacturers of TTY handsets. The current state of development of the equipment is described in the attached letter dated December 3, 1998 from Motorola (See Attachment A hereto). The Petitioner plans to install the necessary equipment within six months of the date the equipment is available. However,

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[4] Order, Para. 10.

it should be emphasized, as noted in Paragraph No. 3 above, that the Petitioner's present systems have the capability on the existing analog channels.

10. **Category 3 - What reasonable steps the carrier will take to address the consumer concerns referenced in the Commission's Order, Mimeo DA 98-1982, released September 30, 1998 (the "September 30 Order").**

11. **Response To Category 3**: The consumer concerns are listed on the Appendix to the September 30 Order, a copy of which is attached hereto as Attachment B for ease of reference. These consumer concerns deal with technical issues which are a function of the equipment to be developed by the equipment manufacturers. The Petitioner will address these consumer concerns by installing state-of-the art equipment that complies with all applicable regulatory requirements, as soon as such equipment is developed and becomes commercially available.

WHEREFORE, good cause shown, the Petitioner requests that the instant petition be granted.

Respectfully submitted,

Southern Illinois RSA Partnership

By: _____
Robert M. Jackson
Its Attorney

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Dated: December 4, 1998

MOTOROLA

Attachment A

December 3, 1998

Dear Informed Customer;

Motorola fully supports the goals of Federal Communications Commission which has called on telecommunications providers to ensure compatibility of existing TDD equipment with Enhanced 911 Emergency Calling Systems.

Motorola has been an active participant in all of the activities related to the implementation of Digital Cellular E911 and Section 255 of the Telecommunications Act of 1996. Motorola was a member of the Telecommunications Access Advisory Committee, a government-sponsored process in which disabled persons, government representatives and industry explored ways to achieve the goals of Section 255 and assisted the Access Board in the creation of the guidelines for implementing Section 255.

We also are working with industry groups, including the Cellular Telecommunications Industry Association (CTIA) Wireless TTY/TDD Forum and the Telecommunications Industry Association Cellular Data Group (TIA/CDG), to find possible solutions for TDD access over digital wireless systems.

In light of the recent Orders released by the Federal Communications Commission, DA98-1982, released September 30, 1998 (September Order) and DA98-2323, which was released November 13, 1998, (November Order) Motorola would like to share with you our plans for providing compliance.

1. Motorola will continue to work with the CTIA Wireless TTY/TDD Forum and TIA/CDG to collect and present test results and demonstrations of several potential methods for dealing with the incompatibility between TDD devices and the Code Division Multiple Access (CDMA) cellular digital technology.
2. Motorola is working with our vendors to build a plan for adding V.18 protocols to the Inter-working Unit (IWU). Part of this plan would be to add this capability in a software upgrade to the IWU. At this time, we anticipate having this plan completed in February, 1999.
3. Motorola is also evaluating vocoder-based solutions that involve changes to the CDMA vocoder as proposed in the TIA/CDG, as well as internally developed solutions. Unfortunately, due to the complexity of the vocoder solutions, we view these as longer term solutions, not short term.

Part of the requirement of the November Order, is to show what steps the carrier will take to address the consumer concerns in the September Order. Motorola has evaluated these concerns in light of the solutions proposed for the infrastructure, and we have included them here.

Either a vocoder solution or the V.18 data solution will address certain of the consumer concerns cited in the September Order. The concerns are listed below, followed by our evaluation for each of the solutions.

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1. The character error rate should approximate that of AMPS, which has been demonstrated at <1% for stationary calls. More research on AMPS performance with TTY would be useful to assist in specifying a range of conditions.

   V.18 - This should have the lowest character error rate of the two solutions, on the order of $1x10^{-6}$ or less.

   Vocoder - Would have a higher error rate, but it would be designed to mitigate the 8% error rate that currently exists, and should be within the desired rate.

2. The TTY caller must be able to visually monitor all aspects of call progress provided to voice users. Specifically, the ability to pass through sounds on the line to the TTY (so that the user can monitor ring, busy, answered-in-voice, etc.) should be provided.

   V.18 - A data call on CDMA does not invoke the vocoder, therefore, no sounds would be available to the caller. Busy signals are automatically detected and reported.

   Vocoder - Since this system uses the vocoder, all signals and audible responses should be transported as part of the normal call set-up and answer.

3. There must be a visual indication when the call has been disconnected.

   Either Solution - This requirement is for the subscriber device. Today, Motorola phones have a visual indicator of "in-use". Loss of indicator means the call has been disconnected.

4. A volume control should be provided.

   Either Solution - This requirement is for the subscriber device, and Motorola currently has a volume control on all of its phones.

5. The TTY user must have a means of tactile (vibrating) ring signal indication.

   Either Solution - This requirement is for the subscriber device, and Motorola currently offers vibrating ring on many models.

6. The caller must be able to transmit TTY tones independent of the condition of the receiving modem. (This is to permit Baudot signaling by pressing a key, to let a hearing person know that the incoming call is from a TTY.)

   V.18 - This capability is addressed by the V.18 protocol. Baudot-only systems have no "Calling Tone" -- the signal heard when facsimile machines begin to connect. V.18 automatically tries to determine the condition of the called modem, and negotiates the appropriate protocol.

   Vocoder - With the Vocoder solution, it is expected that the network will only send the signals that it receives. If no signal is transmitted, it sends silence. Pressing a key such as the spacebar, would cause a "space" character to be transmitted. This would meet the requirement.

7. The land-line party's TTY must not require retrofitting in order to achieve the desired error rate.

   V.18 - This protocol consists of five different TDD protocols and the ability to determine which protocol to use. This would have no impact on the land-line TDD.

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It is expected that the wireless TDD will either be modified to use RS-232 to communicate with the IWU or have a device to convert the TTY signals to serial data.

Vocoder - This solution is expected to provide Baudot TTY signals, which would be compatible with existing TDD devices.

8. The wireless party's TTY may require retrofitting, or a new model TTY to be developed, or the use of a portable data terminal such as a personal digital assistant.

   V.18 - The V.18 protocol is engaged by using a Hayes Compatible modem command, "AT+MV18S". This command can come from the phone, a device that attaches the TDD to the phone, or by the subscriber entering it directly. The phone will be expecting RS-232 communications from the TDD.

   If the TDD is a Personal Digital Assistant, computer, or portable data terminal, the subscriber would also be able to connect to most any Remote Access Server, such as those provided by Internet Service Providers or On-line Information Providers. This is because they would have full access to the capabilities of the IWU for data transmission.

   Vocoder - It is expected that this solution will require minor changes to allow connection of the TDD audio signals to the CDMA wireless phone. However, it will be designed for Baudot signals only.

9. VCO and HCO should be supported where possible.

   V.18 - Unfortunately, it is currently not possible to switch between voice and data while on a data call, nor is it possible to perform simultaneous voice and data transmissions. These features are under assessment, and are not committed to any release.

   Vocoder - This solution is seen to provide automatic switching between the Baudot signals and voice, and provide for a smooth transition between HCO and VCO.

10. Reduction of throughput (partial rate) on Baudot is highly undesirable and should not be relied upon to achieve compliance (see #7). It may be useful as a user-selectable option to improve accuracy on a given call.

    V.18 - Reduction of throughput by increasing the length of the bit transmission rate is not necessary with V.18. The data is carried as RS-232 serial data over the air with full error recovery at speeds of either 14.4 Kbps or 9.6 Kbps. Only once it reaches the modem in the IWU, where it is no longer subject to the vagaries of the air interface, is it transmitted as full rate Baudot.

    Vocoder - This will depend on the design of the solution, but it is not expected to be required.

11. Call information such as ANI and ALI, where provided in wireless voice, should also be provided for TTY calls.

    V.18 - Tests with the currently shipping IWU show that all the information provided a voice E911 call is also provided for a data E911 call. This includes ANI/ALI,

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selective routing, and cell-sector location information. A data call will provide the same E911 Phase I call information as provided for voice.

Vocoder - Since this solution is voice-channel based, it too should provide all the Phase I call information.

12. The solution need not support little-used or obsolete TTY models, but in general should support the embedded base of TTYs sold over the past ten years. The land-line equipment supported must not be limited to that used in Public Service Answering Points (911 centers).

    V.18 - This solution will support up to five modem TDD protocols which are used worldwide. If the TDD is a computer or PDA, it will also provide access to many more computer systems.

    Vocoder - This solution will be based on Baudot, and it is expected that it will be equal to the quality of Baudot currently available.

13. Drive conditions must be supported, again using AMPS as a benchmark.

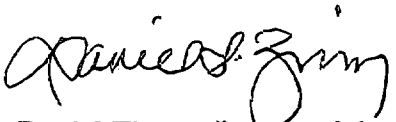
    V.18 - Unfortunately, since V.18 is not currently available with Baudot support in the IWU, drive testing is not possible. When performing test results for acceptance, a drive test may be performed at the option of the carrier.

    Vocoder - Unfortunately, since a vocoder-based solution is not currently available, drive testing is not possible. When performing test results for acceptance, a drive test may be performed at the option of the carrier.

It is our sincere hope that this information is timely and useful. If you have any questions regarding compatibility with Enhanced 911 Emergency Services, please feel free to contact your Motorola representative.

Thank you, and we look forward to working with you on this project. We will keep you apprised of future developments.

Sincerely,



Daniel Zimny, Program Manager

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APPENDIX

September 10, 1998

To: TTY Forum

Fr: Consumer Representatives

The CTIA has said that most of the consumer criteria previously submitted were not usable by the TTY Forum because the criteria covered marketing and distribution as well as design. Marketing and distribution issues for a possible "one-phone-model-per-technology" short-term plan will be taken up with CTIA's senior management, as suggested by them.

This contribution is a new set of criteria to address only functional characteristics of the solutions. The new criteria also reflect new information from the Forum since the first list was drawn up. It is intended to cover any solution.

1. The character error rate should approximate that of AMPS, which has been demonstrated at $< 1\%$ for stationary calls. More research on AMPS performance with TTY would be useful to assist in specifying a range of conditions.

2. The TTY caller must be able to visually monitor all aspects of call progress provided to voice users. Specifically, the ability to pass through sounds on the line to the TTY (so that the user can monitor ring, busy, answered-in-voice, etc.) should be provided.

3. There must be a visual indication when the call has been disconnected.

4. A volume control should be provided.

5. The TTY user must have a means of tactile (vibrating) ring signal indication.

6. The caller must be able to transmit TTY tones independent of the condition of the receiving modem. (This is to permit baudot signalling by pressing a key, to let a hearing person know that the incoming call is from a TTY.)

7. The *landline* party's TTY must not require retrofitting in order to achieve the desired error rate.

8. The *wireless* party's TTY may require retrofitting, or a new model TTY to be developed, or the use of a portable data terminal such as a personal digital assistant.

9. VCO and HCO should be supported where possible.

10. Reduction of throughput (partial rate) on Baudot is highly undesirable and should not be relied upon to achieve compliance (see #7). It may be useful as a user-selectable option to improve accuracy on a given call.

11. Call information such as ANI and ALI, where provided in wireless voice, should also be provided for TTY calls.

12. The solution need not support little-used or obsolete TTY models, but in general should support the embedded base of TTYs sold over the past ten years. The landline equipment supported must not be limited to that used in Public Service Answering Points (911 centers).

13. Drive conditions must be supported, again using AMPS as a benchmark.

Declaration

I, Terry Addington, hereby state the following:

1. I am the President of Southern Illinois Cellular Corporation, the controlling general partner in Southern Illinois RSA Partnership ("the Partnership"). The Partnership is the licensee of Cellular Radiotelephone Service Stations KNKN506 and KNKN820, the Frequency Block B cellular systems serving the Illinois 8 - Washington and Illinois 9 - Clay RSAs, respectively.

2. I have read the foregoing "Petition For Waiver Of Section 20.18(c) Of The Rules," which is to be filed with the Federal Communications Commission by the Partnership. With the exception of those facts of which official notice can be taken, all facts set forth therein are true and correct to the best of my own personal knowledge, information and belief.

I declare under penalty of perjury that the foregoing is true and correct on my own personal knowledge. Executed on this 3rd day of December, 1998.

Terry Addington